COLORADO RIVER RECOVERY PROGRAM **Project No.: 144**
FY – 2009 PROPOSED SCOPE-OF-WORK for:

Native fish response in the middle Green River, Utah

Lead Agency: Utah Division of Wildlife Resources
Principal Investigator:

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Category:
___Ongoing project
_X Ongoing-revised project
___Requested new project
___ Unsolicited proposal

Expected Funding Source:
X Annual funds
___ Capital funds
___ Other (explain)

I. Title of Proposal:

Native fish response to nonnative fish control in the middle Green River, Utah.

II. Relationship to RIPRAP:

Green River Action Plan: Mainstem

III. Reduce negative impacts of nonnative fishes and sportfish management activities (Nonnative and sportfish management)

III.A.2.c Evaluate the effectiveness (e.g., nonnative and native fish response) and develop and implement an integrated, viable active control program.

III. Study Background/Rationale and Hypotheses:

Control actions targeting nonnative gamefish species are being evaluated across the Upper Basin to determine the level of reduction necessary to minimize the threat to the recovery of the endangered Colorado River fishes. There are two key aspects to evaluating control of nonnative fishes: (1) can the abundance of the target species be

reduced significantly by the approaches employed, and (2) is there a measurable positive response by populations of the endangered fish species and associated native fish community?

Given the preliminary stage of nonnative fish control evaluations and the confinement to select river reaches, the most likely first observed positive response will be evident in early life-stages of the native fish community (e.g. flannelmouth and bluehead sucker, roundtail chub and speckled dace). Adult response will not likely be observed for several years following any significant removal due to a number of reasons, one of which is the large home range of adults. A positive response in endangered fish species may be more difficult to measure statistically without a longer time frame for observation due to generation times within endangered fish populations. Data necessary for these analyses will be generated by current and future young-of-year sampling and population estimation projects for these endangered species in conjunction with nonnative fish removal efforts.

This project will focus on determining the response of early life-stages of native and small-bodied fish to removal of nonnative predators, primarily smallmouth bass and northern pike. These fish will serve as indicators of the response that would be experienced by endangered fish species occupying the same habitat types.

IV. Goals, Objectives, End Product:

Goal: A reliable estimate of native fish response to an estimated level of nonnative predator removal.

Objectives:

3) Implement removal of northern pike from Island Park to the confluence of the White River and smallmouth bass from Split Mountain to the Duchesne River. *This objective will be implemented under the nonnative fish removal in the Green River project (Project # 123b).*

4) Assess abundance of northern pike and smallmouth bass in the middle Green River to determine removal rates (also implemented under project #123b).

5) Estimate response of small-bodied and early life-stage native fish to removal of northern pike and smallmouth bass.

End Product:
RIP Annual report: Nov. 2008

V. Study area:

Middle Green River (Split Mountain to Sand Wash): RM 319 - RM 215

VI. Study Methods/Approach:

Objective 1.
Implement removal of northern pike from Island Park to the White River and smallmouth bass from Split Mountain to the Duchesne River.

Removal of northern pike in the middle Green River began in the spring of 2001 in the middle Green River in the reach of river from Island Park to Sand Wash (initially Project # 109, later rolled into Project #123b). This project was later shortened to extend from Island Park only to the confluence with the Duchesne River. Smallmouth bass removal was initiated in early June 2004 beginning at Split Mountain and extending to Sand Wash (Project # 123b). In 2007, the total effort devoted to the project increased and the removal reach was again shortened to the confluence with the Duchesne River.

Objective 2.
Assess abundance of northern pike and smallmouth bass in the middle Green River to determine removal rates.

Currently, all northern pike captured from Island Park to the White River are removed. Since the initiation of northern pike removal in the middle Green River in 2001, catch rates have declined substantially. In 2001, 248 northern pike were removed from the middle Green River and with approximately the same effort, in 2007 only 19 were captured and removed. Catch-per-effort has been used to determine the efficacy of northern pike removal in this stretch of river. Capture-recapture abundance estimates are generated for smallmouth bass each year by completing multiple tagging and removal passes from Split Mountain (RM 319) to the Duchesne River (RM 248) (this project originally covered the area between the Duchesne and Sand Wash but was shortened in 2007). This project has progressed from one marking and three removal passes in 2004 to one marking and 11 removal passes for 2008. This will be repeated in subsequent years and will allow for a determination of removal rates. Removal of northern pike will also continue.

Objective 3.
Estimate response of small bodied native fish to removal of northern pike and smallmouth bass in the middle Green River.

Sampling to evaluate a response of small bodied native fish to nonnative predator removal will be conducted by seining suitable low-flow and backwater habitats. Three low-velocity habitats will be sampled every five miles dependent upon the number of these habits available within the reach. Currently, the first two backwaters encountered in each 5-mile subreach are sampled under project # 138, YOY Colorado pikeminnow monitoring.

Backwater/low velocity habitats will be sampled using a 1.2 m x 4 m seine with 3 mm mesh. At least two non-overlapping seine hauls will be conducted in each habitat

sampled. Preferably the two seine hauls will be parallel to one another and perpendicular to the axis of the backwater. However, if water depth is too great, a haul will be completed along one shoreline. The first two seine hauls will be taken at 1/3 and 2/3 the distance from the mouth of the backwater. Additional seine hauls may be completed in any portion of the habitat including the mouth or shallow tail of a backwater. Length of each seine haul, maximum depth, and average depth will be recorded for each sample. All endangered and native fish will be identified, total length measured (mm), and returned alive to the habitat. Ray counts will be completed for all chubs (*Gila* spp.) captured. All nonnative fishes will be enumerated and returned to the backwater or low-flow habitat.

Task Description and Schedule (FY2009)

Task 1. Prepare sampling equipment and scout sample sites. Sept. 2009

Task 2. Small-bodied fish sampling. Sept. - Oct. 2009

Task 3. Data entry and analysis.

Database development and management - Fall 2009
Data analysis - Winter 2009

Task 4. Annual reporting

RIP Annual report - November 2009

Task 5. Final reporting

Draft final report to recovery program coordinator - August 31, 2010 (This may not be the exact date as we feel our completion report should be submitted concurrently with the Yampa River native fish response completion report. This date is therefore only an estimate).
Draft final report to peer reviewers and Biology Committee – September 30, 2010
Final report to Biology Committee – October 15, 2010

FY2009 Work

- Deliverables and due dates: Annual Report November 2009
- Budget:

Task 1. Prepare sampling equipment and scout sample sites. *This task overlaps with work currently being done by UDWR - Vernal for Task 1 of Project #138 YOY Colorado pikeminnow monitoring.*

Labor-	Work days	Cost
Project Leader (451/day)	3	$1,353

Biologist (350/day)	3	$1,050
Technician (200/day)	0	$0
Travel ($35/day/vehicle)[a]	0	$0
Equipment (maintenance)[b]		$800
Other (per diem)		$0
FY09 Task 1 Subtotal		$3,203

[a] Calculated as average miles traveled per day * cost per mile + daily rental fee = 75 * $0.41 + $5 = $35.75/day.

[b] Includes repair or replacement of outboard motor and/or lower units, replacement of trailer axles, and seine net repair or replacement.

Task 2. Small-bodied fish sampling. *This task overlaps with work currently being done by UDWR - Vernal for Task 1 of Project #138 YOY Colorado pikeminnow monitoring.*

Labor-	Work days	Cost
Project Leader (451/day)	11	$4,961
Biologist (350/day)	11	$3,850
Technician (200/day)	22	$4,400
Travel ($35/day/vehicle) [a]	11	$385
Equipment (maintenance) [b]		$350
Other (per diem: $9/person/day for lunch (9 of these); $30/person/full day (two of these)		$564
FY09 Task 2 Subtotal		$14,510

[a] Calculated as average miles traveled per day * cost per mile + daily rental fee = 75 * $0.41 + $5 = $35.75/day.

[b] Includes purchase of sampling gear, seine nets, etc. required for completion of the project.

Task 3 and 4. Data entry, analysis and annual reporting. *This task overlaps with work currently being done by UDWR - Vernal for Task 2 of Project #138 YOY Colorado pikeminnow monitoring.*

Labor-	Work days	Cost
Project Leader (451/day)	5	$2,255

Biologist (350/day)	9	$3,150
Technician (200/day)	9	$1,800
Travel ($38/day/vehicle)		
Equipment (maintenance)		
Other		
FY09 Task 3&4 Subtotal		$7,205

Task 5. Final reporting.

Labor-	Work days	Cost
Project Leader (438/day)	16	$7,008
Biologist (340/day)	9	$3,060
Technician (195/day)	0	
Travel ($38/day/vehicle)		
Equipment (maintenance)		
Other		
FY 09 Task 5 Subtotal		$10,068

FY 2009 Total	$34,986

IX. Program Budget Summary

FY 2009	$34,986

X. Reviewers